Appendix E
Traffic Analysis

Table of Contents

List of Figures

List of Tables

Appendix A

1.0 INTRODUCTION

The City of Cincinnati has contracted with Parsons Brinckerhoff (PB) to prepare an Environmental Assessment (EA) document, pursuant to the National Environmental Policy Act (NEPA). As part of the preparation of the EA, a traffic analysis was completed as presented in this document. The following sections describe the impacts to traffic and parking on the local roadway network as a result of the proposed Build Alternatives.

This analysis seeks to evaluate and measure potential Streetcar related impacts on traffic operations and parking in downtown Cincinnati. Three alternatives were analyzed, a No Build Alternative, Build Alternative 1 and Build Alternative 2. The No Build Alternative assumes that there would not be a Streetcar system in Cincinnati. Existing roadway features and lanes would remain the same and there would not be any changes to signal operations. The Build Alternatives include changes to curb radii, striping, parking and signal operations.

- At the time of this analysis, specific details on the Streetcar's preferred alignment, station locations, and headways, were not finalized. As such, the analysis assumed that a "hybrid" of light rail and traditional Streetcar modes would be constructed; the Streetcar would travel in mixed traffic throughout the study area with closely spaced stations.

- The traffic analysis also assumed that special signals would be utilized for the Streetcar. Transit signal priority and queue jumping would be necessary. A queue jump is a type of roadway geometry typically found in transit systems. It consists of an additional travel lane on the approach to a signalized intersection. This lane is often restricted to transit vehicles only, though some variations may permit bicyclists, mopeds, and/or motorcycles. The intent of the lane is to allow the higher-capacity vehicles to move to the front of the queue, reducing the delay caused by the signal and improving the operational efficiency of the transit system. A queue jump lane is generally accompanied by a signal which provides a phase specifically for vehicles within the queue jump. Such a signal reduces the need for a designated receiving lane, as vehicles in the queue jump lane get a "head start" over other queued vehicles and can therefore merge into the regular travel lanes immediately beyond the signal.

1.1 Existing Street Network

1.1.1 Roadways

The study area for the proposed Streetcar project is defined as one-half block in each direction from the proposed alignment (Figure 1). Roads included in the traffic analysis are listed below.

- Elm Street
- Walnut Street
- Central Parkway
- Race Street
- Henry Street
- Clifton Avenue
- Main Street
- Vine Street
- 12th Street

Figure 1. Build Alternatives and Stations

1.1.2 Traffic Control

There are 44 traffic signals along the streetcar route that were included in this traffic analysis. Most of these signals are part of the Downtown signal system. The signals operate by a master control system that adjusts cycle lengths by time of day. The existing traffic signals along the Streetcar alignment are listed below and shown in Figure 2.

- Elm Street at 12th Street
- Elm Street at 14th Street
- Elm Street at Liberty Street
- Elm Street at Findlay Street
- Central Parkway at Race Street
- 12th Street at Race Street
- 13th Street at Race Street
- 14th Street at Race Street
- 15th Street at Race Street
- Liberty Street at Race Street
- Green Street at Race Street
- Elder Street at Race Street
- Findlay Street at Race Street
- Central Parkway at 12th Street
- Central Parkway at Vine Street
- Freedom Way at Walnut Street
- 2nd Street at Walnut Street
- 3rd Street at Walnut Street
- 4th Street at Walnut Street
- 5th Street at Walnut Street
- McMicken Street at Vine and Findlay Streets
- 6th Street at Walnut Street
- 7th Street at Walnut Street
- 8th Street at Walnut Street
- 9th Street at Walnut Street
- Court Street at Walnut Street
- Central Parkway at Walnut Street
- 12th Street at Walnut Street
- Freedom Way at Main Street
- 2nd Street at Main Street
- 3rd Street at Main Street
- 4th Street at Main Street
- 5th Street at Main Street
- 6th Street at Main Street
- 7th Street at Main Street
- 8th Street at Main Street
- 9th Street at Main Street
- Court Street at Main Street
- Central Parkway at Main Street
- 12th Street at Main Street
- McMillan Street at Clifton Avenue
- McMillan Street at Vine Street
- Clifton Avenue at Warner Street
- Vine Street at Clifton Avenue

Figure 2. Traffic Study Intersections

1.1.3 Traffic Volumes

Traffic and pedestrian volumes were collected at 44 signalized intersections along the Streetcar alignment during the AM (7:00 to 8:00) and PM (4:00 to 6:00) peak periods.

1.2 Proposed Street Network

1.2.1 Street Network

Functional Classification is the grouping of roads, Streets, and highways in a hierarchy based on the type of highway service they provide. Streets and highways do not operate independently. They are part of an interconnected network, and each one performs a service in moving traffic throughout the system. Generally, Streets and highways perform two types of service. They provide either traffic mobility or land access and can be ranked in terms of the proportion of service they perform. Based on the OKI 2004 Street Classification map shown in Figure 3 Elm Street, Walnut Street, 12th Street and Central Parkway are all Urban Collectors. Main Street is a Principal Urban Arterial and Race Street is a minor urban arterial. Henry Street is a local road. Clifton Avenue and Vine Street are both minor urban arterials.

The existing roadways network along and adjacent to the proposed Streetcar alignment would not be changed in either Build Alternative. One of the lanes in the existing roadways along the alignment will be designed to accommodate the Streetcar. This lane with the Streetcar can also be used by traffic, with the Streetcar having priority over other traffic. However, some on-Street parking will be affected by Streetcar stops.

1.2.2 Traffic Control

The Build Alternatives will require upgrades to the signage, striping and traffic signals at various locations along the Streetcar alignment for safety and to increase transit speed and reliability. At this time it does not appear that signals will be needed at intersections that are currently controlled by stop signs. A transit-only, or “queue jump” lane will be used for the Streetcar project. This configuration will operate by allowing a Streetcar to move through an intersection during the all red phase.

Figure 3. Street Classification Map (2004)

2.0 METHODOLOGY

This chapter summarizes the methodology used to develop traffic volumes and perform operational analysis of opening year traffic conditions for the proposed Streetcar. The various types of data collected and the methodologies used to gather this information are described at a summary level. The overall study area, approach and data collection procedures are discussed first, followed by study scenarios and operational analysis sequence.

In downtown Cincinnati, the majority of the roadways that the Streetcar would travel are roadways with low to moderate traffic volumes for collector, minor arterial or local Streets. Low to moderate traffic volumes are an average daily traffic (ADT) of less than 15,000 vehicles per day. High traffic volumes exceed 15,000 vehicles per day. Central Parkway has high traffic volume intersections. Turning movement counts were collected on average weekdays during the AM and the PM peak periods. This data was collected between October 1, 2009 and January 8, 2010.

The downtown Cincinnati Street corridors were studied in detail to analyze the impact of the Streetcar project. An initial review of the roadway network, Street classification, traffic volumes and traffic control was conducted. Downtown Cincinnati Streetcar corridors include Elm Street, Race Street, Walnut Street, Main Street, 12th Street, Central Parkway, Freedom Way, Henry Street, Clifton Avenue and Vine Street.

2.1 Study Approach

This traffic analysis followed a conventional approach that included data collection, investigation of existing roadway and traffic conditions, and analysis of opening year operational impacts. Most of the background data were obtained from the Synchro traffic model for this project, which included 2009 traffic volumes (vehicular and pedestrian), existing signal timing data, roadway geometry, peak hour factor, heavy vehicle percentage and lane configurations. The model served as a sufficient foundation for conducting the analysis. Refinements were required in order to tailor the information to the existing traffic conditions (lane configuration, signal timing, transit and on-Street parking information) in the study area. The additional data collected as part of the initial reconnaissance task was related to lane geometry and on-Street parking.

2.2 Study Scenarios

The year 2012 was considered as the project opening year. An annual growth rate of one percent was assumed to adjust the 2009 traffic volumes to opening year 2012 volumes. The 4:00 p.m. – 6:00 p.m. (PM peak) traffic was used as the heavy traffic condition during the day. The following scenarios were analyzed to study the impact of Streetcar operations on the roadway system for the opening year during the PM peak hour.

- 2009 Existing Conditions - The roadway network includes existing roadway conditions.
- 2012 No Build - The roadway network will remain the same as the existing 2009 roadway conditions with the addition of The Banks street grid.
- 2012 Build Alternative 1 - The roadway geometry, traffic control and roadway

capacity will remain the same as the No Build scenario. The proposed Streetcar will occupy one lane and require on-street parking adjustments as noted in the conceptual engineering plans. Six Streetcar trips per hour were included in the Build scenario. The lane with the Streetcar can also be used by traffic. Both Build Alternatives will have the same impacts between Freedom Way and Henry Street. This alternative includes an analysis of Vine Street.

- 2012 Build Alternative 2 - The roadway geometry, traffic control and roadway capacity will remain the same as the No Build scenario. The proposed Streetcar will occupy one lane and will cause parking adjustments as noted in the conceptual engineering plans. Six Streetcar trips per hour were included in the Build scenario. The lane with the Streetcar can also be used by traffic. Impacts between Freedom Way and Henry Street were analyzed. This alternative also includes an analysis of West Clifton Avenue instead of Vine Street.

2.3 Operational Analysis

Analysis of roadway and intersection operational performance for the study scenarios was performed through use of the Synchro/SimTraffic simulation analysis package (Version 7) developed by Trafficware, Inc., which evaluates intersection delays and congestion based on procedures similar to those given in the Highway Capacity Manual Chapters 16 and 17. Basic inputs used for Synchro relate primarily to traffic data including traffic volumes, lane geometry (i.e., number of lanes, lane widths, turn-lane storage), signal timing data, pedestrian volumes, bus and heavy vehicle traffic levels, on-Street parking, bus blockage and a variety of other data items.

The methodology used in this study was based on the *Highway Capacity Manual 2000,* for the determination of level of service for existing traffic conditions and future traffic conditions. The analysis results are expressed using Level of Service, Intersection Capacity Utilization and Intersection Delay. Level of Service (LOS) is a qualitative measure, ranging from LOS A (free-flow) to LOS F (congested), to describe operational conditions within a traffic stream and the perception of traffic operational conditions by motorists and passengers (Table 1).

Table 1. Level of Service for Signalized Intersections

Level of Service	Control Delay Per Vehicle (s)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Source: HCS+ Exhibit 16-2

2.4 Stations

The locations of stations are provided in drawings in Appendix C of the Cincinnati Streetcar Environmental Assessment. Related impacts at each station are included in Table 6 in Section 3.1 of this traffic analysis.

Intersection Capacity Utilization (ICU) provides insight into how an intersection is functioning and how much capacity is available to handle traffic fluctuations and incidents (Table 2).

Table 2. Level of Service for Intersection Capacity Utilization

Level of Service	Intersection Capacity Utilization
A	0 to 55%
B	>55% to 64%
C	>64% to 73%
D	>73% to 82%
E	>82% to 91%
F	>91% to 100%

3.0 TRAFFIC ANALYSIS RESULTS

The study intersections were analyzed for AM and PM peak hour conditions for Existing, 2012 No Build and Build Alternatives. The intersections with traffic signals were optimized for all future scenarios. Under the No Build Alternative, all study area intersections would function at LOS C or better. Based on the analysis results for the Build Scenario, 100 percent of the study intersections function at LOS B or better with intersection delay of less than 25 seconds. The LOS improves with the Build Alternatives because of the optimized signal timing and coordination utilized in the Synchro traffic signal program. Table 3, Table 4, and Table 5 summarize the intersection delay (seconds) and levels of service for the study intersections for Existing, 2012 No Build and Build scenarios.

Intersection performance will be affected by the proposed Streetcar, but not significantly. Some changes to intersections, including curb radii, striping and signals will be necessary to accommodate the addition of six Streetcar trips per hour through the study area intersections. If such changes are made, the Streetcar will only impact the traffic flow for 30 seconds (average dwell time) at stops.

Table 6 describes the impacts to the intersections as a result of the Streetcar. Recommendations are included in Table 6 regarding improvements that could be made at each affected location.

Table 3. 2009 Existing Level of Service for Signalized Intersections

Street	Cross Street	AM LOS	Vehicle Delay (sec/veh)	PM LOS	Vehicle Delay (sec/veh)
Walnut Street	Freedom Way	A	6.7	A	3.8
Walnut Street	2nd Street	B	16.2	B	15.9
Walnut Street	3rd Street	C	27.6	C	22.9
Walnut Street	4th Street	B	13.9	A	8.6
Walnut Street	5th Street	A	9.8	B	12.4
Walnut Street	6th Street	A	5.5	A	7.9
Walnut Street	7th Street	B	11.5	B	14.7
Walnut Street	8th Street	B	10.3	A	4.7
Walnut Street	9th Street	B	10.3	B	14.2
Walnut Street	Court Street	B	15.9	B	17.4
Central Pkwy	Walnut Street	B	10.8	B	13.9
Central Pkwy	Vine Street	B	12.1	B	11.7
Central Pkwy	Race Street	C	21.6	B	16.9
Elm Street	12th Street	A	9.6	A	9.4
Elm Street	14th Street	A	9.4	A	8.4
Elm Street	Liberty Street	A	8.4	A	9.7
Elm Street	Findlay Street	A	9	A	8.9
Race Street	Findlay Street	A	6.6	A	4.7
Race Street	Green Street	A	7.2	A	8.1
Race Street	Liberty Street	B	12.9	B	11.5
Race Street	15th Street	B	13.7	B	13.7
Race Street	14th Street	B	16.6	B	13.8
Race Street	13th Street	A	4	A	3.6
Race Street	12th Street	B	14.8	B	14.8
12th Street	Vine Street	B	10.7	B	15.4
12th Street	Walnut Street	A	9.4	A	8.1
Main Street	12th Street	B	11.5	B	11.1
Main Street	Central Pkwy	B	17	B	15.4
Main Street	Court Street	A	9.2	B	10
Main Street	9th Street	B	5.9	A	9
Main Street	8th Street	B	11.9	B	12.5
Main Street	7th Street	A	7.3	B	10.1
Main Street	6th Street	B	15.7	A	9.6
Main Street	5th Street	A	9.3	B	14.7
Main Street	4th Street	B	10.5	A	8.4
Main Street	3rd Street	B	12.8	B	11.6
Main Street	2nd Street	A	2.9	B	13.3
Main Street	Freedom Way	A	3.3	A	6.5
Vine Street	Findlay Street	n/a	n/a	n/a	n/a
Vine Street	Clifton Avenue	B	11.6	B	13.6
Clifton Avenue	Warner Street	B	11.9	B	10.3
Clifton Avenue	McMillan Street	B	15	B	16.9
McMillan Street	Vine Street	B	19	C	23.6

Table 4. 2012 No Build Level of Service for Signalized Intersection

Street	Cross Street	AM LOS	Vehicle Delay (sec/veh)	PM LOS	Vehicle Delay (sec/veh)
Walnut Street	Freedom Way	A	6.8	A	3.8
Walnut Street	2nd Street	B	16.5	B	16.2
Walnut Street	3rd Street	C	27.7	C	23
Walnut Street	4th Street	B	14.1	A	8.9
Walnut Street	5th Street	A	9.9	B	12.7
Walnut Street	6th Street	A	5.5	A	8.1
Walnut Street	7th Street	B	11.8	B	15.2
Walnut Street	8th Street	B	10.4	A	4.8
Walnut Street	9th Street	B	10.3	B	14.4
Walnut Street	Court Street	B	16.6	B	17.6
Central Pkwy	Walnut Street	B	10.8	B	14
Central Pkwy	Vine Street	B	12.2	B	11.8
Central Pkwy	Race Street	C	22	B	17
Elm Street	12th Street	A	9.6	A	9.4
Elm Street	14th Street	A	9.4	A	8.4
Elm Street	Liberty Street	A	8.5	A	9.9
Elm Street	Findlay Street	A	9	A	8.9
Race Street	Findlay Street	A	6.6	A	4.6
Race Street	Green Street	A	7.2	A	8.1
Race Street	Liberty Street	B	13	B	11.5
Race Street	15th Street	B	13.7	B	13.7
Race Street	14th Street	B	16.8	B	13.8
Race Street	13th Street	A	4	A	3.6
Race Street	12th Street	B	14.8	B	14.9
12th Street	Vine Street	B	11	B	15.9
12th Street	Walnut Street	A	9.5	A	8.1
Main Street	12th Street	B	11.6	B	11.2
Main Street	Central Pkwy	B	17.2	B	15.6
Main Street	Court Street	A	9.1	B	10.3
Main Street	9th Street	A	5.8	A	9
Main Street	8th Street	B	12.1	B	12.7
Main Street	7th Street	A	7.4	B	10.3
Main Street	6th Street	B	16.1	A	9.7
Main Street	5th Street	A	9.4	B	15.1
Main Street	4th Street	B	10.7	A	8.4
Main Street	3rd Street	B	13	B	11.7
Main Street	2nd Street	A	3	B	14.1
Main Street	Freedom Way	A	3.3	A	6.5
Vine Street	Findlay Street	n/a	n/a	n/a	n/a
Vine Street	Clifton Avenue	B	11.7	B	13.7
Clifton Avenue	Warner Street	B	12	B	10.4

Table 4. 2012 No Build Level of Service for Signalized Intersection

Street	Cross Street	AM LOS	Vehicle Delay (sec/veh)	PM LOS	Vehicle Delay (sec/veh)
Clifton Avenue	McMillan Street	B	15.3	B	17.4
McMillanstreet	Vine Street	B	19.3	C	24.5

Table 5. 2012 Build Level of Service for Signalized Intersections

Street	Cross Street	AM LOS	Vehicle Delay (sec/veh)	PM LOS	Vehicle Delay (sec/veh)
Walnut Street	Freedom Way	A	6.9	A	3.4
Walnut Street	2nd Street	B	11.8	B	13.7
Walnut Street	3rd Street	A	4.3	A	5.9
Walnut Street	4th Street	A	5.4	A	5.5
Walnut Street	5th Street	A	6.8	B	10.8
Walnut Street	6th Street	A	3.5	A	9.5
Walnut Street	7th Street	B	10.8	B	12.1
Walnut Street	8th Street	A	2.5	A	4.1
Walnut Street	9th Street	A	7.8	A	6.9
Walnut Street	Court Street	B	14.1	B	14.2
Central Pkwy	Walnut Street	A	7.6	B	15
Central Pkwy	Vine Street	B	10.2	B	11.3
Central Pkwy	Race Street	B	16.9	B	11.9
Elm Street	12th Street	A	9	A	8.2
Elm Street	14th Street	A	7.5	A	5.8
Elm Street	Liberty Street	A	9.8	A	8.6
Elm Street	Findlay Street	A	6.4	A	8
Race Street	Findlay Street	A	7.2	A	5.9
Race Street	Green Street	A	8.5	A	8.3
Race Street	Liberty Street	A	7.9	B	11.2
Race Street	15th Street	A	5.4	A	6.1
Race Street	14th Street	A	4.6	A	3.6
Race Street	13th Street	A	2.4	A	1.5
Race Street	12th Street	A	8.4	A	8.7
12th Street	Vine Street	A	5.8	A	8.7
12th Street	Walnut Street	B	10.8	A	9.5
Main Street	12th Street	A	5.5	A	6.4
Main Street	Central Pkwy	B	18.1	B	13.9
Main Street	Court Street	A	6.4	A	5.6
Main Street	9th Street	A	5.3	A	6.7
Main Street	8th Street	B	11.6	A	8.4
Main Street	7th Street	A	5.1	A	7.2
Main Street	6th Street	B	11.8	A	8.4
Main Street	5th Street	A	6.9	B	12.3

Table 5. 2012 Build Level of Service for Signalized Intersections

Street	Cross Street	AM LOS	Vehicle Delay (sec/veh)	PM LOS	Vehicle Delay (sec/veh)
Main Street	4th Street	A	9.9	B	11
Main Street	3rd Street	B	11.3	B	10.1
Main Street	2nd Street	A	2.1	B	15.6
Main Street	Freedom Way	B	10.3	A	8.1
Vine Street	Findlay Street	n/a	n/a	n/a	n/a
Vine Street	Clifton Avenue	B	12.2	B	13.5
Clifton Avenue	Warner Street	B	10.3	A	8.9
Clifton Avenue	McMillan Street	A	9	B	12.9
McMillan Street	Vine Street	B	16.9	C	24.4

3.1 Streetcar Impacts on the Street Network

Both Build Alternatives 1 and 2 yield similar results related to traffic impacts and intersection performance. Table 6 outlines the traffic impacts that adding a streetcar could have on the local roadway network. Potential mitigation of these impacts is also described. The alignment of the streetcar was made with input from stakeholders and to reduce traffic impacts where possible. Placement of streetcar stops was done with existing bus stops in mind. Stops were also placed to access traffic generators such as Findlay Market, Fountain Square, Government Square, and the riverfront. Some existing bus stops could be shared as described in Table 6.

All of the maintenance and storage facility locations would result in changes to existing streets. Locations1 and 2 would require Henry Street to be converted from a two-way to a one-way street going eastbound. Traffic volumes on Henry Street are low and only minor inconvenience would result. For Location 3, a dedicated center lane is needed on Broadway for the streetcar and new traffic signals on the adjacent block of Broadway.

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Stop #1	Midblock – South side of Freedom Way	Occupies west side of recessed drop off/pick up area. The right turn lane on Main Street prohibits use of Main Street for the stop location.	Full width stop on walk may extend past right of way on south side of Freedom Way.	None
Intersection	Freedom Way at Main Street	Left turn from Freedom Way to Main Street.	No traffic impact.	None
Intersection	Main Street at Second Street	No traffic impact.	No traffic impact.	None
Intersection	Main Street at 3rd Street	No traffic impact.	No traffic impact.	None
Intersection	Main Street Between 3rd and 4th Street	Alignment switches from far right lane to far left lane. This switch results from recommendations by City planning.	No traffic impact.	Mid-block signal required.
Intersection	Main Street at 4th Street	No traffic impact.	No traffic impact.	None
Stop #2	SW Corner of Main Street at 5th Street	The steep grade prohibits a stop south of 4th Street. The thru curb lane between 4th and 6th streets prohibits a bump out.	Loss of three peak hour metered spaces.	Stop constructed in existing walk in lieu of "bump out".
Intersection	Main Street at 5th Street	No traffic impact.	No traffic impact.	None
Main Street between 5th and 6th Streets	Main Street	Alignment switches from far left lane to center left lane. This switch results from recommendations by City planning.	No traffic impact.	Mid-block signal required.
Intersection	Main Street at 6th Street	No traffic impact.	No traffic impact.	None
Stop #3	NW Corner of Main Street at 6th Street	No traffic impact.	Loss of one metered space.	Stop placed north of 6th Street due to left turn lane onto 6th, utilizing an existing bump out and avoiding the curb thru lane at 7th Street.

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Intersection	Main Street at 7th Street	No traffic impact.	No traffic impact.	None
Intersection	Main Street at 8th Street	No traffic impact.	No traffic impact.	None
Intersection	Main Street at 9th Street	No traffic impact.	No traffic impact.	None
Stop #4	Near northwest corner of Main and 8th Streets	No traffic impact, majority of stops constructed in existing "Bump out"	No traffic impact	Placed to avoid the the loading zone between 8th and 9th streets.
Intersection	Main Street at Court Street (south)	No traffic impact.	No traffic impact.	None
Intersection	Main Street at Court Street (north)	No traffic impact.	No traffic impact.	None
Stop #5	Midblock – West side of Main Street, between Central Parkway and Court Street	No traffic impact.	Loss of three peak hour metered spaces.	Bump out. Placed south of Central Parkway to avoid impacts to the taxi zone Allows left turn onto 12th Street without a queue jump.
Intersection	Main Street at Central Parkway	No traffic impact.	No traffic impact.	None
Stop #5A	Midblock – West side of Main Street , between Reading Road and 12th Street	None	Loss of four miscellaneous metered spaces. Closure of Wilkymacky Alley.	Bump out. Placed north of Reading Road to avoid midblock pedestrian crossing.

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Intersection	Main Street at 12th Street	Left turn from Main Street to 12th Street. Reconfigure sidewalk and curb at southwest corner of intersection. Decrease sidewalk width from 13 feet to 11 feet.	Loss of one miscellaneous metered space.	Shorten length of off hour limo stand on 12th Street by 5 feet.
12th Street from Main Street to Elm Street	12th Street	Streetcar moved out of the curb lane and into the adjacent lane. (alignment modification from Feasibility Study)	No traffic impact.	Avoid eliminating on-street parking and conflicts with loading zones
Intersection	12th Street at Walnut Street	No traffic impact	No traffic impact.	None
Stop #6	NE Corner of 12th Street at Vine Street	No traffic impact.	Loss of four non-metered spaces.	Bump out. Coordination with Duke Vault in area required.
Intersection	12th Street at Vine Street	No traffic impact.	No traffic impact.	None
Intersection	12th Street at Race Street	No traffic impact.	No traffic impact.	None
Intersection	12th Street at Elm Street	Right turn from 12th Street to Elm Street.	Reconfigure walk and curb at northeast corner of intersection (southwest corner of Washington Park)	Relocate Metro Stop to the east.
Stop #7	SE corner Elm Street and 14th Street	No traffic impact.	Loss of two metered spaces. Combine with bus stop.	Stop located north of new parking garage entrance as recommended by City planning.
Intersection	Elm Street at 14th Street	No traffic impact.	No traffic impact.	None
Intersection	Elm Street at 15th Street	No traffic impact.	No traffic impact.	None
Stop #8	SE corner on Elm Street at Liberty Street	No traffic impact.	Loss of four non-metered spaces. Combines with bus stop.	Bump out

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Intersection	Elm Street at Liberty Street	No traffic impact.	No traffic impact.	None
Intersection	Elm Street at Green Street	No traffic impact.	No traffic impact.	None
Stop #9	East side of Elm Street, north of Findlay Market	No traffic impact. (Alignment modification from Feasibility Study)	Loss of one metered space. Impacts loading zone.	Bump out, Provides access to Findlay Market.
Intersection	Elm Street at Findlay Street	No traffic impact.	No traffic impact.	None
Stop #10	South east corner of Elm and Henry Street	Stop at same location of existing Metro stop.	Combine with bus stop.	Bump out.
Henry Street		Streetcar alignment moved from McMicken Avenue to Henry Street due to the severity of the horizontal and vertical alignment at the intersection of Elm Street and McMicken Avenue (Alignment modification from Feasibility Study)	No traffic impact	None
Intersection	Elm Street at Henry Street	Right turn from Elm Street to Henry Street. Streetcar uses northern most lane of Henry Street.	Loss of twelve non-metered spaces. Henry becomes one way eastbound with Henry becoming one lane through to Race Street and a portion of Henry Street dedicated to truck maneuvering to serve the existing driveways on the north side of the street.	Change Henry Street from two-way to one-way

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Intersection	Henry Street at Race Street	Right turn from Henry Street to Race Street.	Reconfigure curb and walk at southwest corner of intersection. Loss of one non-metered space. The 10-foot wide walk remains. Prohibit left turn from northbound McMicken Street to southbound Race Street.	Construct bump out to direct traffic turning right onto Race Street from McMicken into the left two southbound lanes of Race Street.
Intersection	Race Street at Findlay Street	No traffic impact.	No traffic impact.	None
Stop #11	West side of Race Street, north of Findlay Market	No traffic impact.	Loss of four metered spaces.	Provides access to Findlay Market, while missing one bus stop.
Lane Change	Race Street between West Elder Street and Green Street.	Alignment switches from far center right lane to center left lane. This switch results from recommendations by City planning.	No traffic impact.	Mid-block signal required.
Intersection	Race Street at Green Street	No traffic impact.	No traffic impact.	None
Intersection	Race Street at Liberty Street	No traffic impact.	No traffic impact.	None
Stop #12	SE corner of Race at Liberty Street	No traffic impact.	Loss of one metered space. Impacts loading zone. Changed from west to east side of Race Street.	Bump out. Located to miss the two bus stops.
Intersection	Race Street at 15th Street	No traffic impact.	No traffic impact.	None
Intersection	Race Street at 14th Street	No traffic impact.	No traffic impact.	None
Intersection	Race Street at 13th Street	No traffic impact.	No traffic impact.	None

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Stop #13	East side of Race Street near the south end of Washington Park	No traffic impact.	Loss of two non-metered spaces.	Bump out. Changed from west to east side of Race Street.
Intersection	Race Street at 12th Street	No traffic impact.	No traffic impact.	None
Intersection	Race Street at Central Parkway	No traffic impact.	Shorten median island five feet to the east	None
Central Parkway from Race Street to Walnut Street	Central Parkway	Alignment modification from Feasibility Study	Streetcar moved out of the curb lane and into the adjacent lane; conflicts with loading zones.	Avoid eliminating on-street parking.
Intersection	Central Parkway at Vine Street	No traffic impact.	No traffic impact.	None
Stop #14	Northeast corner of Central Parkway and Vine Street	Stop at location of existing parking spaces.	No traffic impact	Existing parking options available
Intersection	Central Parkway at Walnut Street	Right turn only lane.	Elimination of right turn only lane required with loss of one metered space on Walnut Street.	Alternate would be to reconfigure curb, walk and existing private parking at southwest corner of intersection to allow both right turn movements with loss of one metered space. Signal preemption required.
Walnut Street from Central Parkway to 7th Street	Walnut Street	Alignment modification from Feasibility Study	Conflicts with loading zones.	Streetcar moved out of the curb lane and into the adjacent lane to avoid eliminating on-street parking.

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Intersection	Walnut Street at Court Street	No traffic impact	No traffic impact.	None
Intersection	Walnut Street at 9th Street	No traffic impact	No traffic impact.	None
Stop # 15	Near the SW corner of Walnut and Ninth streets	Stop near loading zone and curb thru lane and existing parking spaces.	Loss of three metered spaces.	Bump out. Designed to miss the loading zone and curb thru lane that becomes a left turn lane at 7th street.
Intersection	Walnut Street at 8th Street	No traffic impact	No traffic impact.	None
Intersection	Walnut Street at 7th Street	No traffic impact	No traffic impact.	None
Stop # 16	Near northeast corner of Walnut Street and 7th Street	Originally designed to miss the parking areas in front of the Aronoff Center. City Planning recommends putting stop where the parking occurs in order to get the streetcar out of the traffic flow.	Combine with bus stop.	Queue jump can occur at 6th Street instead of at 5th Street.
Intersection	Walnut Street at 6th Street	Alignment switches from far left. Stop near Fountain Square.	No traffic impact.	Signal preemption required.
Intersection	Walnut Street at 5th Street	No traffic impact	No traffic impact.	None
Stop # 17	SW corner of Walnut and 5th streets	Designed to avoid the large bus station at Fountain Square, the garage entrance from Walnut Street, the bus turning movement into Government Square and the street frontage at the Federal Building on the east side of Walnut Street.	Loss of three peak hour metered spaces.	Bump out.
Intersection	Walnut Street at 4th Street	No traffic impact	No traffic impact.	None
Intersection	Walnut Street at 3rd Street	No traffic impact	No traffic impact.	None

Table 6. Streetcar Impacts on Local Street Network

Streetcar Station Stop or Road Intersection	Street	Issue	Impact[1] (Build Alternatives 1 and 2)	Mitigation (Build Alternatives 1 and 2)
Stop #18	Walnut Street between 3rd and 2nd streets	Grade change on Walnut Street.	No traffic impact.	Engineering design for grade mitigation likely required at this location.
Intersection	Walnut Street at 2nd Street	No traffic impact.	No traffic impact.	Queue jump required
Intersection	Walnut Street at Freedom way	No traffic impact if eastern most curb lane on Walnut Street is parking.	No traffic impact.	None
Intersection	Freedom Way	Streetcar alignment chosen at Freedom Way because Theodore M. Berry Way will not be constructed between Race Street and Vine Street. (Alignment modification from Feasibility Study).	No traffic impact.	None
Stop #19	Vine Street (east side) North of Mulberry Avenue	Stop at same location as existing Metro bus stop. Streetcar temporarily blocks thru traffic for short periods.	Combine with bus stop. (Impact by Build Alternative 1 only)	Bump out. Add appropriate warning signs.
Stop #20	Corry Street East of Vine Street	Streetcar will need to reverse directions because it is at end of the line.	Intersection may become congested at times. Potential loss of 11 metered parking spaces. (Impact by Build Alternative 1 only)	Instatll new traffic signal. Install parking control and related signs.
Stop #21	Vine Street (west side) North of Mulberry Avenue	Streetcar temporarily blocks thru traffic for short periods.	Loss of four unmetered parking spaces. Congestion may occur during peak hours. (Impact by Build Alternative 1 only)	Bump out. Add appropriate warning signs.

1. Impacts highlighted in yellow may be adverse

4.0 PARKING

4.1 On-Street Parking

Depending on the location of the streetcar track within the street and the locations of the associated streetcar stops, existing on-street parking spaces will be impacted. Each of the streets included in the Build Alternatives allow on-street parking to some extent. Where on-street parking is allowed, some spaces will need to be removed to allow for streetcar stops. Depending on station design and location-specific conditions, three to six parking spaces would be impacted at streetcar stop locations by the Build Alternatives. Additionally, parking spaces may be impacted near intersections where streetcars proceed around a corner. Since on-street parking is allowed the parking impacts will be similar for both Build Alternatives that use these streets.

4.2 Parking Impacts

On-street parking capacity was evaluated along the streetcar alignment to identify possible impacts. Impacts arise when the proposed Build Alternatives or proposed stop locations conflict with existing on-street parking. Table 7 summarizes the existing on-street parking supply and the approximate number of spaces that would be eliminated by the Build Alternatives and stop locations. Appendix A exhibits the locations were parking spaces would be lost.

Build Alternative 1 would require the removal of approximately 61 on-street parking spaces. Build Alternative 2 would require the removal of approximately 46 on-street parking spaces; which is 9 percent of the total number of on-street parking spaces available. Of the eliminated on-street parking spaces:

- 24 are metered parking spaces (no restrictions)
- 11 are peak hour metered spaces (pay from 9:00 AM to 5:00 PM)
- 22 are unmetered on-street spaces

In all cases there are available and comparably priced on-street parking spaces immediately adjacent to the removed spaces, directly across the street or right around the corner. In the downtown area, between Freedom Way and Central Parkway, all of the metered spaces affected are currently priced at $2.00/hour with a two hour limit. This rate is designed to encourage frequent turnover of these spaces and all day parking is not allowed. All of the available adjacent parking spaces are identically priced. There are also surface lots within 1-2 blocks of these spaces, which are also similarly priced and off all-day parking for $6.00-$8.00.

In OTR, rates of on-street parking spaces are lower than in the CBD: six minutes for $0.05, 12 minutes for $0.10, and 30 minutes for $0.25. All of the affected metered spaces have time limits that range from 30 to 120 minutes. As in the downtown area, there are available and comparably priced on-street spaces in the immediate vicinity. In a few areas, parking spaces that would be affected are at no charge and all of these locations feature similar no-metered spaces in the immediate vicinity.

The area that would experience the greatest reduction of on-street spaces is Henry Street, based on its location of two of the three maintenance and storage facilities under

consideration. These spaces are not metered, only sporadically used, and feature a comparable number of non-metered spaces in the immediate vicinity.

Development of a maintenance and storage facility would have no parking impacts at any of the three proposed sites. The No Build Alternative would not require the removal of any of the available on-street parking spaces in the study area.

4.3 Off-Street Parking

Although 46 parking spaces may be eliminated by the Streetcar project, there are a number of other parking options available to motorists. The proposed parking garage at Washington Park near Elm Street and 14th Street will have approximately 500 spaces available for area drivers. Public parking is also available on many lots within the study area. These lots are located at or near the following intersections:

- Elm Street at 14th Street
- Elm Street at Central Parkway
- Main Street at Central Parkway
- Main Street at 3rd Street
- Main Street at 6th Street
- Main Street at 7th Street
- Main Street at 8th Street
- Main Street at 9th Street
- Main Street at Central Parkway
- Walnut Street at 9th Street
- Walnut Street at 8th Street
- Walnut Street at 5th Street
- Walnut Street at 3rd Street
- Walnut Street at Central Parkway
- Vine Street at 12th Street
- Vine Street at Mercer Street

The following legend is used in combination with Table 7.

- Metered Parking (no restrictions)
- Peak Hour Metering (AM restricted) – no parking 7-9 am
- Peak Hour Metering (PM restricted) – no parking 4-6 pm
- Peak Hour Metering – pay from 9am-5pm, free during other periods
- Valet/Limo/Taxi
- Unmetered On-Street Parking
- Some combination of parking – see Appendix A

Table 7. Existing On-Street Parking Supply and Number of Spaces Eliminated

Segment by Block			Existing Parking Supply		Number of Spaces Eliminated	
			Total # of Spaces Available			
Street Name	From	To	East/South Side	West/North Side	East/South Side	West/North Side
Freedom Way	Walnut Street	Main Street	0	0	0	0
Main Street	Freedom Way	2nd Street	0	0	0	0
	2nd Street	3rd Street	0	0	0	0
	3rd Street	4th Street	5	7	0	0
	4th Street	5th Street	4	3	0	-3
	5th Street	6th Street	0	0	0	0
	6th Street	7th Street	6	9	0	-1
	7th Street	8th Street	1	3	0	0
	8th Street	9th Street	5	5	0	0
	9th Street	Court Street	4	4	0	0
	Court Street	Central Parkway	0	6	0	-3
	Central Parkway	12th Street	8	9	0	0
12th Street	Main Street	Walnut Street	8	8	0	-1
	Walnut Street	Vine Street	3	7	-4	0
	Vine Street	Race Street	5	5	0	0
	Race Street	Elm Street	9	0	0	0
Race Street	Central Parkway	12th Street	11	13	0	0
	12th Street	13th Street	8	10	-2	0
	13th Street	14th Street	10	5	0	0
	14th Street	15th Street	15	12	0	0
	15th Street	Liberty Street	13	10	-1	0
	Liberty Street	Green Street	9	9	0	0
	Green Street	Findlay Street	15	12	0	-4
	Findlay Street	Henry Street	15	7	0	-1
Henry Street	Race Street	Elm Street	3	10	-2	-10
Elm Street	Henry Street	Findlay Street	3	8	0	0
	Findlay Street	Green Street	12	20	-1	0
	Green Street	Liberty Street	1	6	0	0
	Liberty Street	15th Street	14	12	-4	0
	15th Street	14th Street	13	10	0	0
	14th Street	12th Street	25	9	-2	0
Central Parkway	Race Street	Walnut Street	11	-	0	-
Walnut Street	Central Parkway	Court Street	3	3	0	-1
	Court Street	9th Street	4	2	0	0
	9th Street	8th Street	4	6	0	-3
	8th Street	7th Street	0	0	0	0
	7th Street	6th Street	0	0	0	0
	6th Street	5th Street	0	0	0	0
	5th Street	4th Street	6	4	0	-3
	4th Street	3rd Street	0	3	0	0
	3rd Street	2nd Street	0	0	0	0
	2nd Street	Freedom Way	6	0	0	0
TOTAL			496		-46	

NOTES

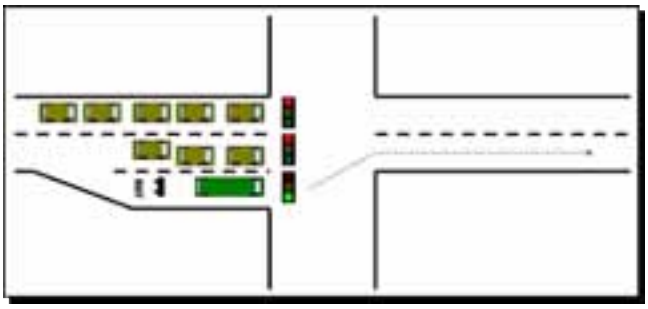
1. No color represents non-metered on-street parking.
2. Taxis stands, 10-min Parking Zones, and Motorcycle Zones NOT INCLUDED
3. Assumed no parking along bus stops or loading zones.

5.0 MITIGATION

The addition of six streetcar trips per hour along the downtown roadway network would not require that mitigation measures be implemented to minimize traffic impacts. The streetcar would only impact the traffic flow for an average dwell time of 30 seconds at stops.

The Build Alternatives would require upgrades to the signage, striping and traffic signals at various locations along the alignment for safety and to increase transit speed and reliability. Intersections that are currently controlled by stop signs do not appear to warrant signals at this time. A transit-only, or "queue jump," lane would allow the streetcar to move through the intersection while other traffic is stopped.

Example of Queue Jumping



Curb lane bump-outs would be used wherever possible to minimize removal of curb lane on-street parking. The dual side entry design of the streetcar would allow for stations loading on the left side of the vehicles as it travels in the Central Business District (CBD), and on the right side of the vehicle when traveling in OTR and the Banks. Curb lanes are often used as mandatory turn lanes due to downtown's one-way street grid, making it prohibitive to run the streetcar in the curb lane as it would interfere with turning traffic. Likewise, peak period traffic operations depend on the use of curbside travel lanes that are used as parking lanes during off-peak hours.

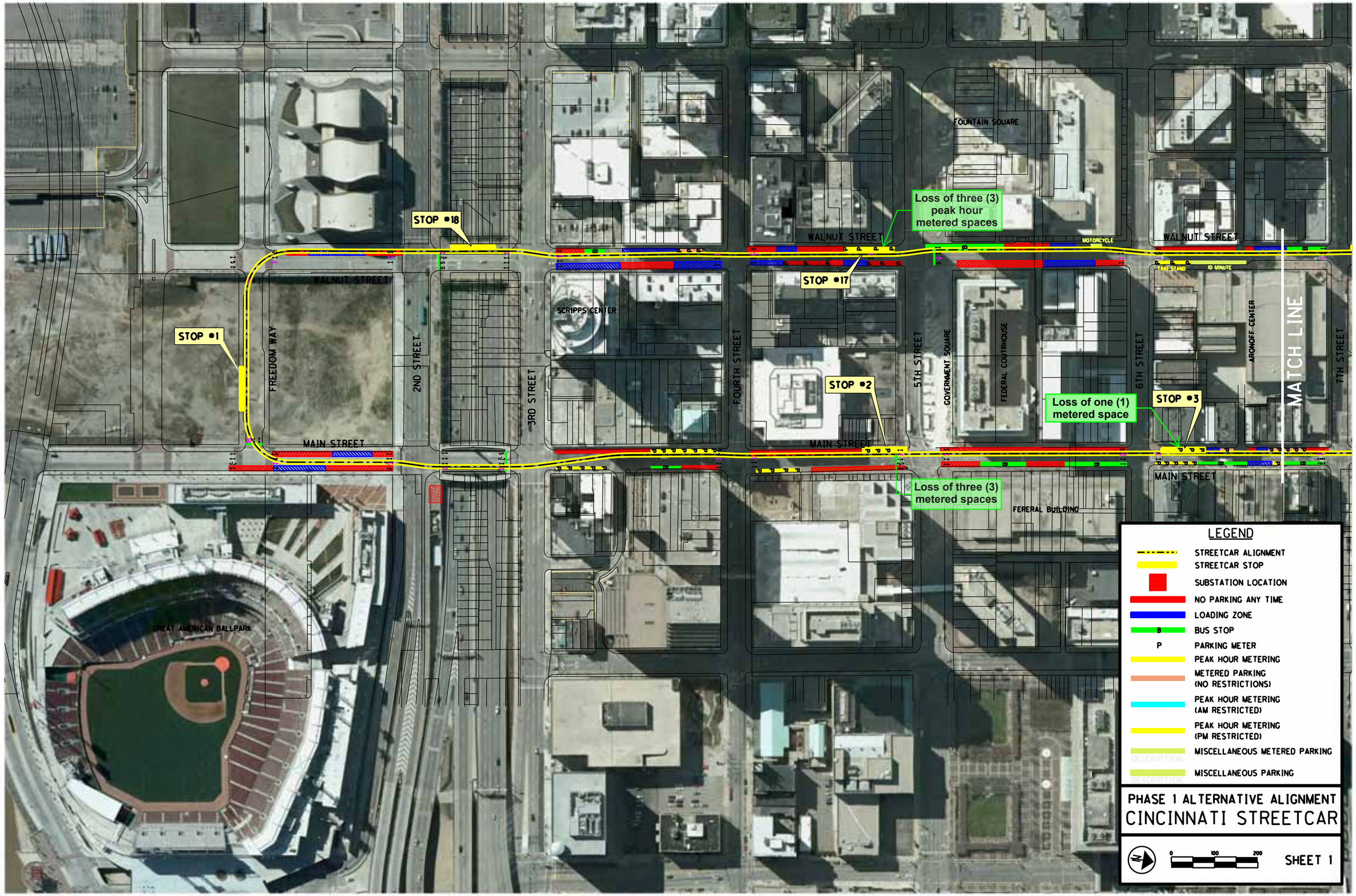
Two mid-block signals already exist at the intersection of 13th Street and Race Street and on Walnut Street south of 5th Street. Mid-block signals would be designed with transit priority, thus allowing the streetcar to change lanes safely while traffic in adjacent lanes waits at a red light. The turn from southbound Race Street to eastbound Central Parkway may require adjustments to the current signal design to allow signal priority for the streetcar. The width of the intersection could make signal prioritization necessary to allow the streetcar to make the turn and maneuver the lane changes necessary to move into the second lane from the curb in the eastbound lanes.

The elimination of 61 parking spaces would not be a significant impact, as there are a number of other parking options available. In addition, the parking garage planned for the redeveloped Washington Park near Elm Street and 14th Street will have approximately 500 new spaces. Public parking is also available at many existing lots within the study area, including facilities at:

- Elm Street at 14th Street
- Elm Street at Central Parkway
- Main Street at Central Parkway
- Walnut Street at 9th Street

- Main Street at Central Parkway
- Main Street at 3rd Street
- Main Street at 6th Street
- Main Street at 7th Street
- Main Street at 8th Street
- Main Street at 9th Street
- Walnut Street at 8th Street
- Walnut Street at 5th Street
- Walnut Street at 3rd Street
- Walnut Street at Central Parkway
- Vine Street at 12th Street
- Vine Street at Mercer Street

Appendix A
On-Street Parking Locations


STOP •18
STOP •1
STOP •17
STOP •2
STOP •3
Loss of three (3) peak hour metered spaces
Loss of one (1) metered space
Loss of three (3) metered spaces
WALNUT STREET
MAIN STREET
FREEDOM WAY
2ND STREET
3RD STREET
FOURTH STREET
5TH STREET
6TH STREET
7TH STREET
SCRIPPS CENTER
FOUNTAIN SQUARE
COVERNMENT SQUARE
FEDERAL COURTHOUSE
ARONOFF CENTER
FERERAL BUILDING
GREAT AMERICAN BALLPARK
MOTORCYCLE
TAXI STAND
10 MINUTE
MATCH LINE
LEGEND
STREETCAR ALIGNMENT
STREETCAR STOP
SUBSTATION LOCATION
NO PARKING ANY TIME
LOADING ZONE
B BUS STOP
P PARKING METER
PEAK HOUR METERING
METERED PARKING (NO RESTRICTIONS)
PEAK HOUR METERING (AM RESTRICTED)
PEAK HOUR METERING (PM RESTRICTED)
MISCELLANEOUS METERED PARKING
MISCELLANEOUS PARKING
DESCRIPTION
DESCRIPTION
PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR
N
0
100
200
SHEET 1

MATCH LINE

CENTRAL PARKWAY

VINE STREET

COURT STREET

12TH STREET

STOP •14

STOP •6

Loss of four (4) non-metered spaces

STOP •16

STOP •15

WALNUT STREET

Loss of one (1) metered space

Loss of three (3) peak hour metered spaces

ARONOFF CENTER

MATCH LINE

7TH STREET

8TH STREET

9TH STREET

COURT STREET

CENTRAL PARKWAY

12TH STREET

Loss of three (3) peak hour metered spaces

STOP •4

STOP •5

Loss of one (1) miscellaneous metered space

MAIN STREET

COURTHOUSE

LEGEND

- STREETCAR ALIGNMENT
- STREETCAR STOP
- SUBSTATION LOCATION
- NO PARKING ANY TIME
- LOADING ZONE
- B — BUS STOP
- P — PARKING METER
- PEAK HOUR METERING
- METERED PARKING (NO RESTRICTIONS)
- PEAK HOUR METERING (AM RESTRICTED)
- PEAK HOUR METERING (PM RESTRICTED)
- MISCELLANEOUS METERED PARKING
- MISCELLANEOUS PARKING

PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR

0 100 200

SHEET 2

CENTRAL PARKWAY

ELM STREET

ELM STREET

ELM STREET

10 MINUTE

CENTRAL PARKWAY

SCHOOL FOR CREATIVE AND PERFORMING ARTS

WASHINGTON PARK

12TH STREET

14TH STREET

15TH STREET

LIBERTY STREET

GREEN STREET

MATCH LINE

RACE STREET

RACE STREET

RACE STREET

RACE STREET

NO PARKING AM OR PM

STOP #7

Loss of two (2) metered spaces

STOP #8

Loss of four (4) non-metered spaces

STOP #13

Loss of two (2) non-metered spaces

STOP #12

Loss of one (1) metered space

MATCH LINE

CENTRAL PARKWAY

VINE STREET

COURT STREET

12TH STREET

STOP #14

STOP #6

Loss of four (4) non-metered spaces

Loss of one (1) metered space

WALNUT STREET

LEGEND

- STREETCAR ALIGNMENT
- STREETCAR STOP
- SUBSTATION LOCATION
- NO PARKING ANY TIME
- LOADING ZONE
- B — BUS STOP
- P — PARKING METER
- PEAK HOUR METERING
- METERED PARKING (NO RESTRICTIONS)
- PEAK HOUR METERING (AM RESTRICTED)
- PEAK HOUR METERING (PM RESTRICTED)
- MISCELLANEOUS METERED PARKING
- MISCELLANEOUS PARKING

DESCRIPTION

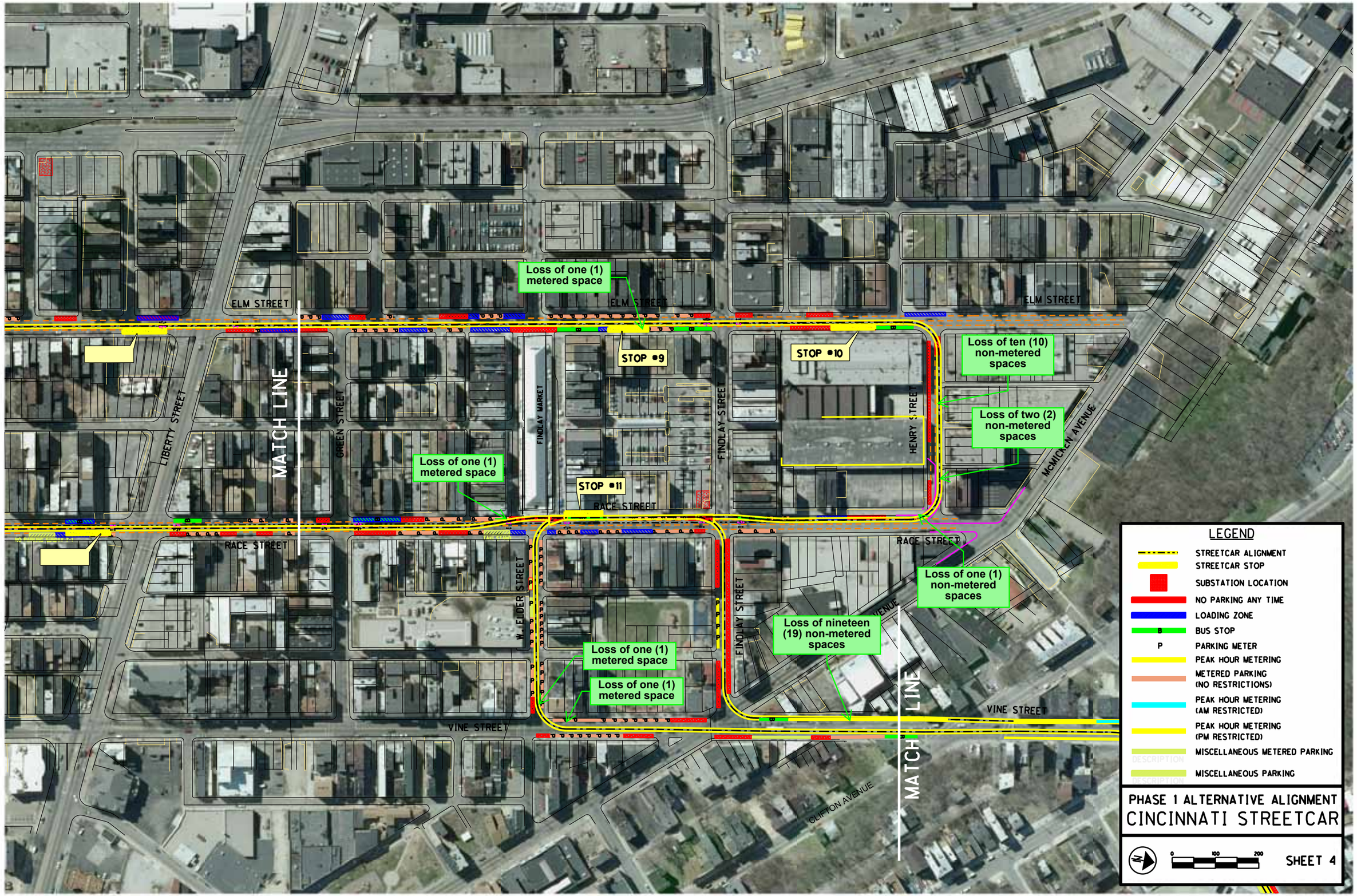
DESCRIPTION

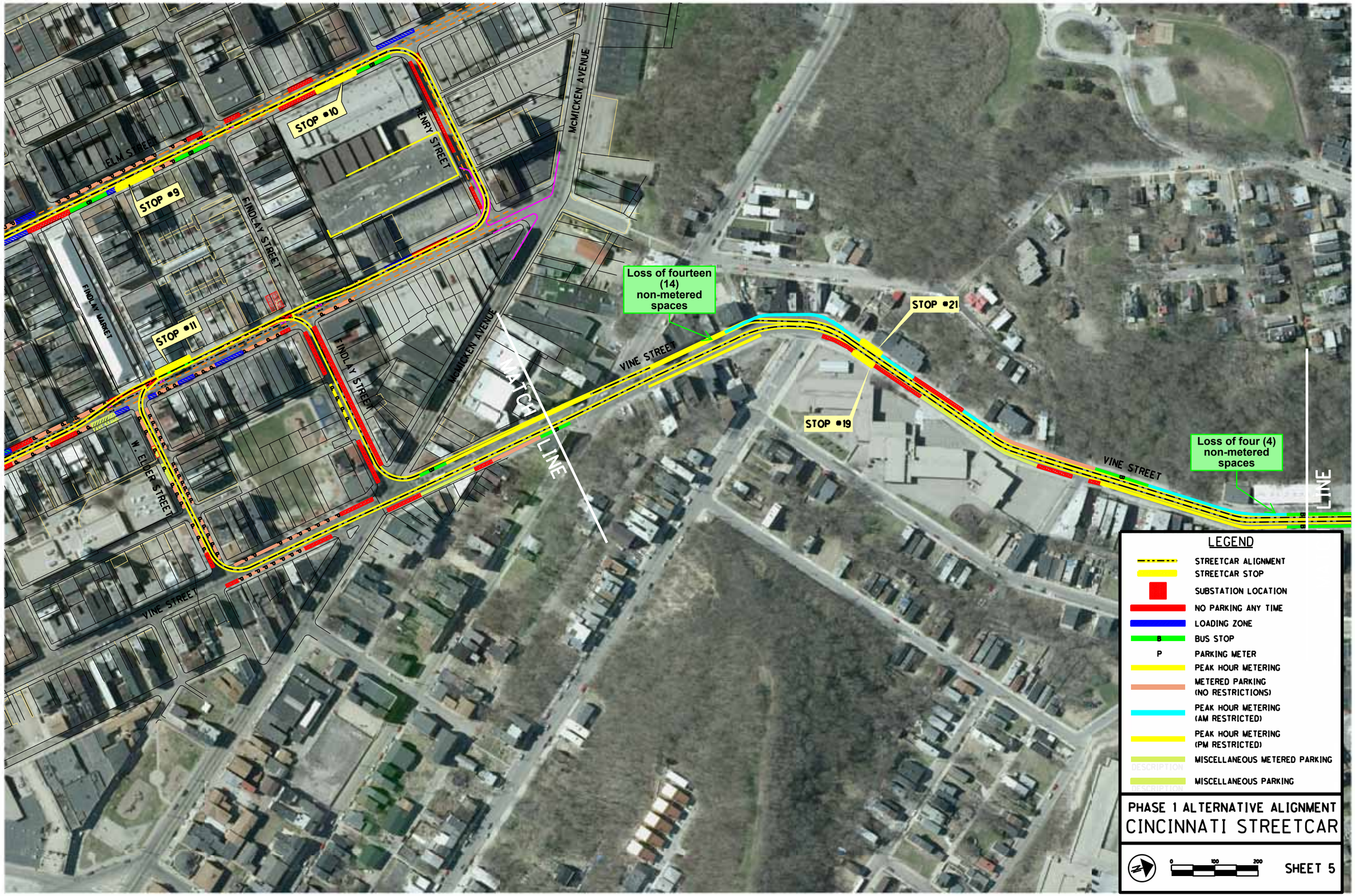
PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR

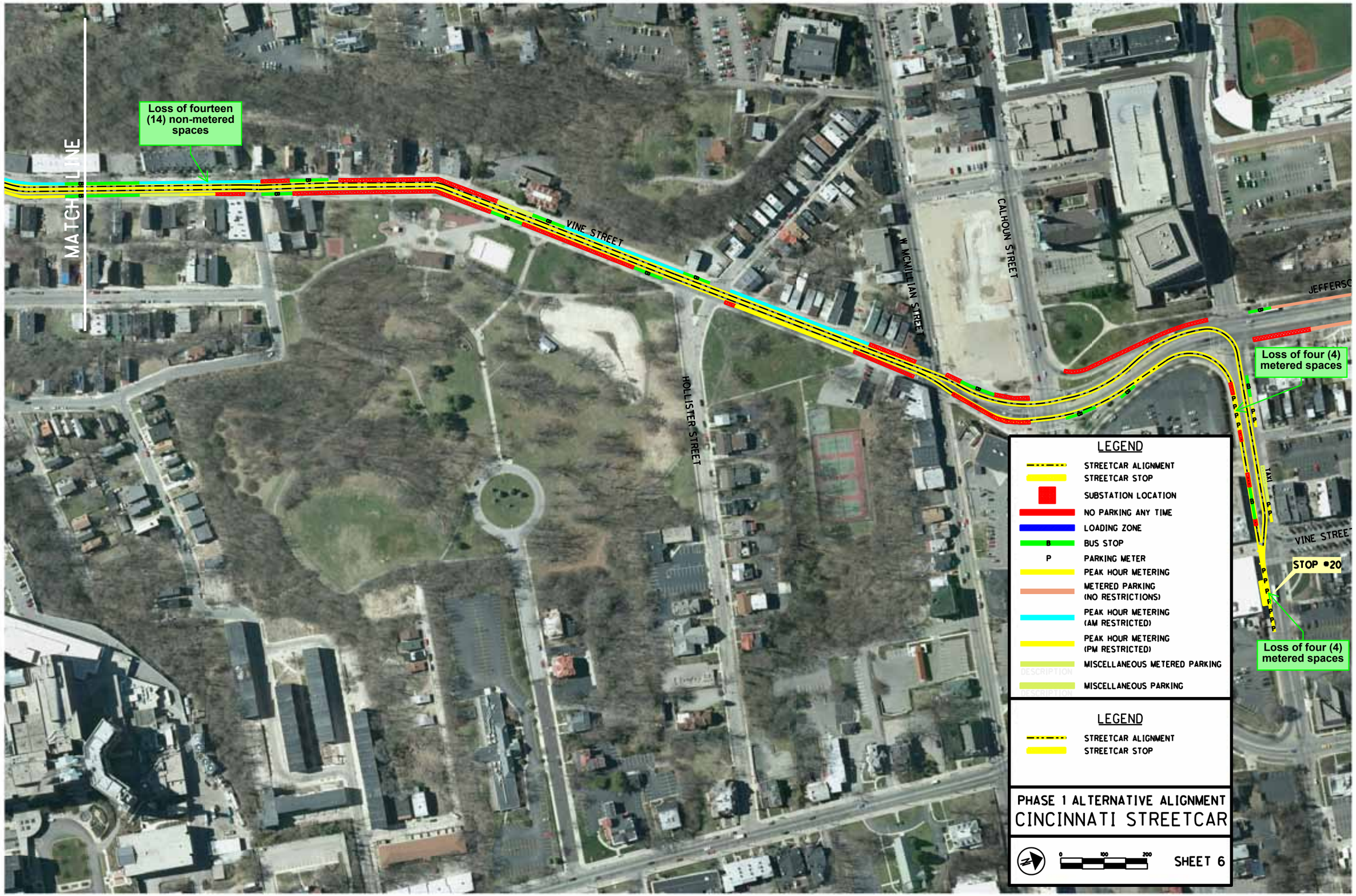
N

0 100 200

SHEET 3


ELM STREET
ELM STREET
ELM STREET
Loss of one (1) metered space
STOP 9
STOP 10
Loss of ten (10) non-metered spaces
Loss of two (2) non-metered spaces
LIBERTY STREET
MATCH LINE
GREEN STREET
FINDLAY MARKET
FINDLAY STREET
HENRY STREET
MCMICKEN AVENUE
Loss of one (1) metered space
STOP 11
RACE STREET
RACE STREET
RACE STREET
W. ELDER STREET
Loss of one (1) non-metered spaces
Loss of one (1) metered space
Loss of one (1) metered space
Loss of nineteen (19) non-metered spaces
FINDLAY STREET
VINE STREET
VINE STREET
MATCH LINE
CLIFTON AVENUE
LEGEND
STREETCAR ALIGNMENT
STREETCAR STOP
SUBSTATION LOCATION
NO PARKING ANY TIME
LOADING ZONE
B BUS STOP
P PARKING METER
PEAK HOUR METERING
METERED PARKING (NO RESTRICTIONS)
PEAK HOUR METERING (AM RESTRICTED)
PEAK HOUR METERING (PM RESTRICTED)
MISCELLANEOUS METERED PARKING
DESCRIPTION
MISCELLANEOUS PARKING
DESCRIPTION
PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR
0
100
200
SHEET 4


ELM STREET
STOP •10
HENRY STREET
McMICKEN AVENUE
STOP •9
FINDLAY STREET
FINDLAY MARKET
STOP •11
FINDLAY STREET
McMICKEN AVENUE
W. ELDER STREET
VINE STREET
MATCH LINE
Loss of fourteen (14) non-metered spaces
STOP •21
VINE STREET
STOP •19
Loss of four (4) non-metered spaces
MATCH LINE
LEGEND
STREETCAR ALIGNMENT
STREETCAR STOP
SUBSTATION LOCATION
NO PARKING ANY TIME
LOADING ZONE
B BUS STOP
P PARKING METER
PEAK HOUR METERING
METERED PARKING (NO RESTRICTIONS)
PEAK HOUR METERING (AM RESTRICTED)
PEAK HOUR METERING (PM RESTRICTED)
MISCELLANEOUS METERED PARKING
DESCRIPTION
MISCELLANEOUS PARKING
DESCRIPTION
PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR
0
100
200
SHEET 5


Loss of fourteen (14) non-metered spaces
MATCH LINE
VINE STREET
HOLLISTER STREET
W MCMILLAN STREET
CALHOUN STREET
JEFFERSO
Loss of four (4) metered spaces
TAXI
VINE STREE
STOP 20
Loss of four (4) metered spaces
LEGEND
STREETCAR ALIGNMENT
STREETCAR STOP
SUBSTATION LOCATION
NO PARKING ANY TIME
LOADING ZONE
B BUS STOP
P PARKING METER
PEAK HOUR METERING
METERED PARKING (NO RESTRICTIONS)
PEAK HOUR METERING (AM RESTRICTED)
PEAK HOUR METERING (PM RESTRICTED)
MISCELLANEOUS METERED PARKING
DESCRIPTION
MISCELLANEOUS PARKING
LEGEND
STREETCAR ALIGNMENT
STREETCAR STOP
PHASE 1 ALTERNATIVE ALIGNMENT
CINCINNATI STREETCAR
0
100
200
SHEET 6